

# Early physiotherapy after surgery for breast cancer can reduce the incidence of lymphoedema in the following 12 months

## Synopsis

Summary of: Torres Lacombe M, et al (2010) Effectiveness of early physiotherapy to prevent lymphoedema after surgery for breast cancer: a randomised single blinded, clinical trial. *BMJ* 340: b5396. doi:10.1136/bmj.b5396. [Prepared by Nicholas Taylor, CAP Co-ordinator.]

**Question:** Does an early physiotherapy program reduce the incidence of lymphoedema in women after surgery for breast cancer? **Design:** Randomised, controlled trial with blinded outcome assessment. **Setting:** A hospital in Spain. **Participants:** Women after unilateral breast cancer surgery with axillary lymph node dissection. Bilateral breast cancer, surgery without axillary lymph node dissection, and systemic disease were exclusion criteria. Randomisation of 120 participants allocated 60 to the early physiotherapy and education group, and 60 to an education group. **Interventions:** Both groups received a physiotherapist-led education program about lymphoedema and strategies for prevention. In addition, the early physiotherapy group received manual lymph drainage (a gentle massage technique to improve lymph circulation), massage of the scar, stretching exercises for the shoulder muscles, and active and active-assisted shoulder exercises, including proprioceptive neuromuscular facilitation patterns without resistance. Both groups started their intervention about 5 days after surgery and received treatment 3 days a week for 3 weeks. In addition, the early physiotherapy group completed

a home program of shoulder and stretching exercises once daily during the 3 week intervention. **Outcome measures:** The primary outcome was the incidence of lymphoedema in the 12 months after surgery, defined as a greater than 2 cm increase in arm circumference at two adjacent points compared with the unaffected arm. Secondary outcome measures were volume ratio (the volume of the affected arm divided by the volume of the unaffected arm), and a survival analysis over the 4 assessment times of 1, 3, 6 and 12 months. **Results:** 116 participants completed the study. After one year 4 women in the early physiotherapy and education group had developed lymphoedema and 14 women in the education group had developed lymphoedema. Therefore one case of lymphoedema was prevented for every 6 women treated with the early physiotherapy program (95% CI 3 to 20). At 12 months the average volume of the affected arm was 1.6% greater than the unaffected arm in the early physiotherapy group but 5.1% greater in the education group. The survival analysis showed that lymphoedema was diagnosed four times earlier in the education group than in the early physiotherapy group (hazard ratio 0.26, 95% CI 0.09 to 0.79). **Conclusion:** A relatively short-term early physiotherapy program involving manual lymph drainage, scar massage, exercise and education can reduce the incidence of lymphoedema in the first 12 months after surgery for breast cancer.

[95% CIs calculated by the CAP Co-ordinator.]

## Commentary

Lymphoedema remains a prevalent and potentially debilitating side effect of breast cancer treatment. Data from recent research studies suggest that the incidence of lymphoedema after axillary node dissection and radiation therapy ranges from 10% to 31% (Shih 2009, Thomas-McLean 2008, Hayes 2008). Lately, attention has focused on early detection and management of lymphoedema using sensitive measurement techniques (Thomas-McLean 2008, Stout-Gergich 2008).

This study is to date the largest randomised controlled trial examining the benefit of early comprehensive physiotherapy in this group of patients. This single-centre trial with blinded outcome assessment provides evidence in support of early physiotherapy to prevent lymphoedema after axillary node dissection surgery for breast cancer.

In the study, 18 women (16%) developed lymphoedema over the 12-month post-operative period, with 14 cases occurring in the control group and 4 cases in the intervention group. It is not clear, however, whether some of the cases of lymphoedema that developed were transient increases in limb volume or the more chronic form of the condition (present for > 3 to 6 months). Further follow-up may have been helpful to distinguish whether some of the cases may have dissipated over time (Hayes 2008).

The early physiotherapy program examined in this study

included 9 physiotherapy treatment sessions delivered over a 3-week period by physiotherapists with specialised training. The program was similar in approach to the Physiotherapy Management Care Plan proposed in 2002 (Box et al 2002). While the analysis shows a potential protective benefit, given the relatively small numbers that developed lymphoedema, the cost in terms of time and finances (and the need for physiotherapist specialist training) may make routine provision of this early physiotherapy program prohibitive. Moreover, as a combination of treatments were provided, it is unclear whether the benefit in reduced incidence of lymphoedema was due to the manual lymph drainage, scar massage, the focused exercise, or the combination of treatments. Based on the positive findings of this trial, future research should attempt to elucidate the relative benefit of individual components of this type of program.

Margaret L McNeely  
University of Alberta, Canada

## References

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